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ABSTRACT

Research suggests that depression is associated with low self-efficacy expectancies and that enhancement of self-efficacy expectancies may be effective in the relief of depressive symptoms. To examine the causal relationships between self-efficacy expectancies for interpersonal skills and depressed mood, two independent experiments were conducted. In the first experiment, 30 female undergraduates were led to believe that a social interaction task they would later perform was either within (high self-efficacy) or beyond (low self-efficacy) their abilities. Subjects completed the Multiple Affect Adjective Checklist (MAACL) before and after the manipulation, the Beck Depression Inventory (BDI) to screen out depressed individuals, and a speed-writing task. The results showed that low self-efficacy expectancies produced greater depressed mood than high self-efficacy expectancies. In the second experiment, 30 different female undergraduates followed the same procedures as in experiment 1, with the addition of a procedure that induced a temporary depressed or elated mood. Results showed that a depressed mood produced lower self-efficacy expectancies than an elated mood. These findings indicate that under some conditions changes in judgments of one's ability to perform a behavior can lead to changes in the degree of depression. (KGB)

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Self-Efficacy Expectancy and Depression: An Investigation of Causal Relationships

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Abstract

Two experiments examined the causal relationships between self-efficacy expectancies for interpersonal skills and depressed mood. In experiment I, induced self-efficacy expectancies for an anticipated social interaction significantly influenced mood with low self-efficacy expectancies creating greater depressed mood than high self-efficacy expectancies. In experiment II, induced mood (depressed or elated) had no effect on self-efficacy expectancies for the anticipated social interaction. It is suggested that stronger mood inductions may be necessary to produce changes in specific self-efficacy expectancies.

Self-Efficacy Expectancy and Depressed Mood: An Investigation of Causal Relationships

Depression has long been an important social problem that has received much attention from clinical, social, and personality psychologists. Although various aspects of depression have been investigated from numerous theoretical perspectives, cognitive approaches (e.g., Abramson, Seligman, & Teasdale, 1978; Beck, 1967; 1976; Lewinsohn, 1974) have dominated the literature. One recent theory concerned with the relationship between cognitions, emotion, and behavior that holds promise in explaining the development of depressive symptoms and their treatment is self-efficacy theory (Bandura, 1977, 1982). Self-efficacy theory maintains that all psychological and behavioral change occurs as a result of changes in expectations about one's own ability to perform certain behaviors (self-efficacy expectancies) and changes in expectancies about the probable consequences or outcomes of those behaviors (outcome expectancies). Bandura and his colleagues (Bandura, Adams, Hardy, & Howells, 1980; Bandura, Reese, & Adams, 1983) and other researchers (Barnes & Maddux, 1985; Condiotte & Lichtenstein, 1981; DiClemente, 1981; Kazdin, 1979; Maddux, Norton, & Stoltenberg, in press; Maddux, & Rogers, 1983; Maddux, Sherer, & Rogers, 1982; McIntyre, Lichtenstein, & Mermelstein, 1983; Stanley & Maddux, 1984) have established that changes in self-efficacy expectancies are associated closely with changes in behavior and are excellent predictors of

behavior and behavioral intentions.

Self-efficacy expectancy also has been viewed as important to the development and treatment of depression. Research has suggested that depression is associated with low self-efficacy expectancies (Davis & Yates, 1982; Kanfer & Zeiss, 1983) and that enhancement of self-efficacy expectancies may be a common mechanism through which various types of interventions are effective in the relief of depressive symptoms (Fleming & Thorton, 1980; Zeiss, Lewinsohn, & Munoz, 1979).

The causal relationship, however, between self-efficacy expectancy and depressive symptoms has not been examined carefully. Kanfer and Zeiss (1983) provide correlational evidence that depressed individuals have lower self-efficacy expectancies than nondepressed individuals for various behaviors at home, work, school, and social situations, but they do not address the nature of the causal relationship between self-efficacy expectancy and depression. In an attempt to address this issue, Davis and Yates (1982) manipulated self-efficacy expectancy and outcome expectancy and examined their influence on depressive affect. Although they report a change in affect based on changes in self-efficacy expectancy, their manipulation of self-efficacy expectancy was inappropriate. Self-efficacy expectancy was manipulated by presenting subjects with easy or difficult anagrams. Subjects were not told, however, that the anagrams were easy or difficult, and therefore this manipulation

may not have induced the intended levels of self-efficacy. Evidence for this is suggested by the fact that females who received only the self-efficacy manipulation (no outcome expectancy information) did not change their self-efficacy expectations after the manipulation was presented.

The present study attempted an initial investigation of the causal relationship between self-efficacy expectancy and mood. Specifically, two questions were addressed: (1) Can induced changes in important self-efficacy expectancies produce changes in mood along a depression-elation continuum? and (2) Can induced mood changes produce corresponding changes in self-efficacy expectancies?

The questions were addressed through two independent experiments. In the first experiment, participants were led to believe that a social interaction task they would be asked to perform later was either within (high self-efficacy) or beyond (low self-efficacy) their abilities. Subjects' mood was assessed prior to and following these induced expectancies. It was predicted that low self-efficacy expectancies would produce depressed mood relative to high self-efficacy expectancies. In the second experiment, different participants underwent a procedure that induced a temporary depressed or elated mood. Following the mood induction, participants were led to believe they must perform the same social interaction task described in the first experiment. They then were asked to assess their abilities for performing that task (self-efficacy

expectancies). It was predicted that depressed mood would lead to lower self-efficacy expectancies for the described task than those produced by an elated mood.

Experiment I

Self-efficacy expectancies for successful performance of a social interaction task were manipulated and resultant changes in degree of depressed mood were examined.

Method

Design and Subjects

The experiment employed a one-way analysis of variance with two levels (high and low) of self-efficacy expectancy.

Subjects were 30 female undergraduates enrolled in Introductory Psychology. They were recruited on a volunteer basis and received course credit for their participation. Subjects were randomly assigned to conditions so that each group contained an equal number of subjects. Only female subjects were used to control for sex differences in susceptability to the manipulation.

Stimulus Materials

Social interaction task description. Subjects were told that at the end of the experiment they would meet with a male college student who would be in the adjoining room waiting for another experiment to begin. Subjects were informed that they would be observed by the experimenter during this meeting in order that she might learn more about how people meet and talk with another person for the first

time. Subjects were told that their goals for the task were to introduce themselves to the student, talk with him for 10 minutes, make him feel comfortable, find a common interest about which to converse, and get him to like them. The experimenter indicated that the male student would not know the purpose of the interaction until it was over and that he would perceive the subjects as students, like himself, waiting to be called to participate in an experiment.

Social skills assessment task. Subjects were given a bogus "Social Aptitude Inventory" that consisted of 22 true/false items. They were told that this brief questionnaire could provide information about social skills such as those required for the interaction task scheduled to occur later. For example, they were told the inventory could predict their ability to approach and talk to strangers, create a pleasant atmosphere during a social situation, and make other people like them. Bogus feedback indicated that subjects' social skills were either below average (low self-efficacy expectancy) or above average (high self-efficacy expectancy). The low self-efficacy expectancy feedback indicated that the subject scored in the 10th percentile and that therefore he/she would be unskillful at approaching and initiating conversations with unfamiliar people. The high self-efficacy expectancy feedback indicated that the subject scored in the 90th percentile and that he/she would be highly skillful at approaching and initiating conversations with unfamiliar people.

Dependent Measures

A check on the validity of the specific self-efficacy expectancy manipulation consisted of five questions concerning subjects' perceptions of their ability to perform the described social task ("It will be easy for me to introduce myself to the person in the next room." "I will find it difficult to talk to the person in the next room." "It will be easy for me to create a comfortable social atmoshpere when I meet the person in the next room." "It will be hard for me to find something to talk about that I have in common with the person I am about to meet." "It will be easy for me to make friends quickly with the person next door.") Subjects also were given six questionnaire items designed to assess self-efficacy expectancies for social situations in general (e.g., "It is difficult for me to make new friends.") (Sherer, Maddux, Mercandante, Prentice-Dunn, Jacobs, & Rogers, 1982). Subjects indicated their degree of agreement with various statements on seven-point rating scales, the endpoints of which were "strongly agree" and "strongly disagree." Items were scored so that higher scores indicated strong agreement. Scores on these manipulation check items were based on the mean ratings of the items in each group. Alpha coefficients for the clusters were: specific self-efficacy = .88, general self-efficacy = .61.

Mood Assessment.

Subjects were given the Multiple Affect Adjective Check List

(MAACL) prior to and following the experimental manipulation. This device assesses depression, anxiety, and hostility (Today Form, Zucherman & Lubin, 1965). Responses on the MAACL were the primary dependent measure. Subjects also were given a writing speed task since Velten (1968) has reported that depressed individuals have slower writing speeds than nondepressed or elated individuals. This task required subjects to write numbers in descending order from 100 for one minute. The number of numerals written served as a second dependent measure.

Procedure

Subjects were run individually. When a subject arrived, she was given the Beck Depression Inventory (BDI; Beck, 1967) in order to screen out moderately or severely depressed individuals. Subjects were told that this test was one that a colleague was trying to validate and that the present experimenter was doing her friend a favor by collecting extra data from her subjects.

Following administration of the BDI, each subject was told that the purpose of the experiment was to learn more about social skills and social aptitude, a topic of concern for clinical psychologists who often are required to teach such skills to clients. It was suggested that a more specific purpose of the experiment was to examine the relationship between social skills and problem-solving ability. To test this idea the subject would be asked to take two "tests" that provide information about one's problem-solving ability.

It was stated that these tests were to be administered at two points during the present experiment. The subject was then asked to fill out the MAACL and were given the writing speed task.

Following these pretests, the social interaction task was described. Before the meeting was to take place, however, it was explained that a few more tasks needed to be completed. First, the subject would be asked to complete the Social Aptitude Inventory, a brief questionnaire which could be computer-scored in the experimenters's office so that results would be available within five minutes of the subjects' completion of the test. After the subject completed the inventory, the experimenter went across the hall, randomly assigned the subjects to a condition, and returned with the self-efficacy expectancy feedback printed on computer paper. The subject was given one copy of the feedback to read silently as the experimenter read another copy aloud.

After the experimental manipulation, the subject was told that it was time to do the problem-solving tasks once more. Subsequently, the MAACL and the writing speed task were re-administered. Following these tests, the subjects was given a final questionnaire that included the manipulation check items.

Each subject was given the Velton elation-induction procedure in order to eradicate any temporary depressed mood created by the experimental manipulations. She was told that this procedure would put her in the best possible mood to meet the college student next

door. Following this procedure, each subject was debriefed fully and thanked for her participation.

Results

All subjects agreed to complete the BDI, and no subject scored in the moderately or severely depressed range (no score was 16 or above). Therefore, data from all subjects were analyzed

Manipulation Check

The self-efficacy expectancy manipulation had a significant effect on subjects' self-efficacy expectancies for their ability to perform the social interaction task F (1,28)=6.83, $p<.01$. Subjects in the high self-efficacy expectancy condition had stronger expectancies for their performance on the task than did subjects in the low self-efficacy expectancy condition (Ms=5.0 and 3.9). The self-efficacy expectancy manipulation had no effect on subjects' self-efficacy expectancy for social situations in general, F (1,28) = 1.91, $p<.18$ (Ms=5.1 and 4.6), indicating the manipulation was specific to the task at hand, as intended.

Dependent Measures

MAACL. A one-way analysis of covariance, using pretest scores as the covariate, indicated that the self-efficacy expectancy manipulation had a significant effect on depressed mood, $F(2,27)=4.30$, $p<.05$. Subjects in the high self-efficacy expectancy condition reported less depressed mood than did subjects in the low self-efficacy condition (Means adjusted for covariate = 9.3 and

14.0). The self-efficacy expectancy manipulation had no effect on MAACL anxiety scores, $F(2,27)=2.25$, $p<.14$, or hostility scores, $F(2,27)=2.26$, $p<.14$, indicating that the manipulation's effect was specific to depressed mood, as intended.

Further analysis indicated that of the 15 subjects in the high self-efficacy condition, 14 reported less depressed mood following the experimental manipulation. Of the 15 subjects in the low self-efficacy condition, 12 reported more depressed mood following the experimental manipulation. Results of a Fisher exact probability test indicated that the probability of such a distribution occurring by chance is .0001.

Writing speed task. A one-way analysis of covariance, using pretest scores as the covariate, indicated that the self-efficacy expectancy manipulation had no effect on subjects' writing speed, $F(2,27)=1.56$, $p<.22$ (Means adjusted for covariate = 57.1 and 56.0).

Experiment II

Differential moods were induced in subjects who then reported their self-efficacy expectancies for a described social interaction task.

Method

Design and Subjects

The design employed a one-way analysis of variance with two levels of induced mood, depressed and elated.

Subjects were 30 female undergraduates enrolled in Introductory

Psychology (not the same subjects who participated in Experiment I). They were recruited on a volunteer basis and received course credit for their participation. Subjects were assigned randomly to conditions so that each group contained an equal number of subjects. Subjects were all female in order to control for sex differences and because Velten (1968) has suggested that females are more susceptible than males to mood induction procedures.

Stimulus Materials

Mood induction procedure. Mood was induced via a procedure developed and validated by Velten (1968). Subjects read 60 depressed or 60 elation self-referent mood statements from cards, each of which contained one statement. Subjects were instructed via a tape-recorded message to read each card first to themselves and then aloud. They were asked to continue to look at and concentrate on each statement until the tape-recorded instructions told them to go to the next card. Subjects spent 20 seconds reading and concentrating on each card.

Subjects in the induced-elation condition read statements such as "Things will be better and better today" and "God, I feel great." Subjects in the induced-depressed condition read statements such as "I want to go to sleep and never wake up" and "I have too many bad things happen in my life."

Social interaction task description. This task description was the same as in Experiment One.

Dependent Measures

Mood assessment. A check on the validity of the mood induction procedure was provided by administration of the MAACL prior to and following administration of the procedure. A writing speed task provided a second manipulation check.

Self-efficacy expectancy for task. Self-efficacy expectancy for the social interaction task was measured via the same questions which comprised the manipulation check in Experiment I. In the present experiment, however, these questions were the primary dependent measures. Alpha coefficients for the two cluster of measures were: specific self-efficacy expectancy = .91, general self-efficacy expectancy = .71.

Procedure

Subjects were run individually. As in Experiment I, each subject was given the BDI immediately after arrival in order to screen out moderately or severely depressed subjects. The purpose of the study was explained as in Experiment I, and each subject was given the pretest MAACL and writing speed task. The social interaction task then was described and the subject told that a few more tasks needed to be completed before the interaction would take place. First, the Velton procedure was administered. The subject was told that this was another problem-solving task that measured ability to concentrate. Instructions to read and concentrate on the cards were provided, and the subject was told that she would be

observed throughout the task via a one-way mirror in order that concentration ability could be assessed without disrupting her. The experimenter then left the room for 20 minutes and returned immediately after the subjects had read the final mood statement.

The self-efficacy expectancy questionnaire then was administered and the subject repeated the MAACL and writing speed task. Subjects were debriefed completely, and those in the depressed-induction condition were asked to repeat the Velton procedure with 20 of the elation-induction mood statements in order to eradicate any temporary depressed mood created by the manipulation.

Results

All subjects agreed to complete the BDI, and no subject scored 16 or above. Thus, data from all subjects was used.

Manipulation Checks

MAACL. A one-way analysis of covarinace, using pretest scores as a covariate, indicated that the Velton mood induction procedure had a significant effect on degree of depressed mood, F (2, 27) = 5.11, $p<.03$. Subjects in the depressed-induction condition reported more depressed mood than did subjects in the elation-induction condition (Means adjusted for covariate = 13.3 and 9.3). The Velton procedure had no effect on anxiety scores, F (2, 27) = 1.89, $p<.18$, or hostility scores, $F(2, 27) = 1.71$, $p<.20$. Thus, the manipulation was specific to depressed mood, as intended.

Writing speed task. A one-way analysis of covariance, using

pretest scores as covariate, indicated that the mood induction procedure had no effect on subjects' writing speed, F, (2,27) = .01, p <.90.

Dependent Measures

The Velton procedure had no effect on subjects' self-efficacy expectancies for the specific social interaction task, F (1,28) = .26, p <.61 (Ms = 4.9 and 4.6), or on their self-efficacy expectancies for social situations in general, F (1,28) = 0 (Ms = 5.0 and 5.0).

Discussion

To the authors' knowledge, the present study is the first to examine the causal relationship between self-efficacy expectancy and depressed mood by addressing the influence that changes in self-efficacy expectancy and degree of depressed mood exert on each other. The study is also the first self-efficacy and depression study to manipulate self-efficacy expectancy in an appropriate manner by providing false feeback which indicated that subjects could expect to do very well or very poorly in an upcoming social interaction.

As predicted, experimentally-induced changes in self-efficacy expectancy for specific interpersonal behaviors produced changes in depressed mood, with low self-efficacy expectancy creating greater depressed mood than high self-efficacy expectancy. Contrary to predictions, experimentally-induced changes in mood did not produce changes in self-efficacy expectancy, despite successful manipulation

of induced mood states. The failure of this manipulation to produce changes in self-efficacy expectancy may indicate that the causal relationship between self-efficacy expectancy and depressed mood occurs in only one direction. It is also possible, however, that a stronger change in depressed mood is required before self-efficacy expectancies for social skills will be influenced. It is noteworthy that changes in self-efficacy expectancy for a specific task led to changes in depressed mood but did not lead to changes in degree of anxiety or hostility reported. These results rule out an alternative explanation that changes in self-efficacy expectancies produce changes in general dysphoric mood, not just depression specifically.

Conclusions based on the present study are limited due to its analogue nature. Generalizability to a natural setting can be made only tentatively since the degree of depressed mood investigated here is not equivalent to a clinical syndrome of depression. The study does, however, provide useful information about cognitive processes that relate to changes in degree of depressed mood. Specifically, it is apparent that under some conditions changes in judgments of one's ability to perform a behavior can lead to changes in degree of depressed mood.

The present work could be expanded by examining the effects of induced self-efficacy expectancies on symptoms of depression other than reported mood such as behavioral deficits and self esteem. Also, since it is possible that the present results are specific to

self-efficacy expectancies for interpersonal behaviors, future research should investigate the effects of induced self-efficacy expectancies for various other types of behaviors (e.g., achievement behavior) on mood. Future research also should examine the effects of a stronger mood induction on self-efficacy expectancies for various behaviors. Further, since outcome expectancies and outcome value have been shown to interact with self-efficacy expectancies in producing behavior change (Barnes & Maddux, 1985; Maddux & Barnes, 1985; Maddux et al., in press; Maddux & Rogers, 1983; Maddux et al., 1982; Stanley & Maddux, 1984), it will be important for future research to include consideration of these variables as they relate to the occurrence of depressive symptoms. Future investigations could examine the unique and combined effects of induced self-efficacy expectancy, outcome expectancy, and outcome value on various symptoms of depression. It also may be useful to examine the effects of induced mood on self-efficacy expectancy, outcome expectancy, and outcome value in various spheres of behavior.

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